

**Aggregate Processing And
Air Pollution Control in Maine**

**A Guide for Complying with
NEW SOURCE PERFORMANCE STANDARDS
for Nonmetallic Mineral Processing Plants
Including
Initial Opacity Compliance Test Protocol**

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Air Emission Guidelines for Aggregate Processing Facilities

This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Maine or the Department of Environmental Protection. Any regulatory decisions made by the Department of Environmental Protection in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

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Purpose of This Document

This document gives you a broad overview of the air pollution control requirements in Maine that apply to aggregate processing facilities and the federal New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants. Its purpose is twofold. First, it will assist facility operators in determining which equipment is subject to regulation. Second, it will outline the notification and record keeping requirements, as well as the fugitive opacity standards and initial compliance test requirements of the NSPS in 40 CFR Part 60, Subparts A and OOO. You are encouraged to read it and to contact Bureau of Air Quality (BAQ) staff for a more thorough discussion of this issue.

If you own or operate one or more **crushing** or **grinding** plants, you may be affected by these requirements. These requirements are **not** intended for stand-alone screen or wash plants, pits, or quarries. This NSPS does **not** apply to any plant that does **not** have the capability to **crush** or **grind**.

This NSPS applies to you only when you process **nonmetallic minerals**. The definition of nonmetallic mineral includes sand, gravel, and crushed and broken stone. Most asphalt and concrete contains more than 50% nonmetallic mineral by weight, so they are classified as nonmetallic minerals.

Part I – New Source Performance Standard Applicability

What are New Source Performance Standards (NSPS)?

The NSPS are federal standards established under section 111 of the Clean Air Act (42 USC 7411). The standards reflect the degree of emission limitation available through application of the best adequately demonstrated technological system of continuous emission reduction, taking into account the cost of achieving such emission reduction, any non-air quality health and environmental impacts, and energy requirements. The federal NSPS for Nonmetallic Mineral Processing Plants is listed in 40 CFR Part 60, Subpart OOO. (CFR is an abbreviation for Code of Federal Regulations).

Maine adopted the federal NSPS into its regulations. The NSPS for Nonmetallic Mineral Processing Plants is contained in 06-096 CMR (Code of Maine Rules) Chapter 143, Section 2(A)(66).

When do these regulations apply?

The Nonmetallic Mineral Processing Plant NSPS requirements apply to most types of **processing equipment** (affected facility):

- Constructed after August 31, 1983, or
- Modified or reconstructed after August 31, 1983.

However, since 1983 most nonmetallic mineral processing equipment has gone through enough modifications or reconstruction so that it now comes under the NSPS. Additionally, applying the NSPS over a broader range of equipment will simplify the record keeping and reporting requirements when NSPS equipment in a production line is replaced by non-NSPS equipment.



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For those of you who are curious, descriptions of what are considered modifications and reconstruction are included below.

Modification

Any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) from that facility or results in the emission of a pollutant not previously emitted.

An increase in the production rate of equipment involving a **capital expenditure** (see 40 CFR Appendix B, § 60.2), replacing a control device with another system which is **less efficient**, or converting a wet screening operation to a dry screening operation are probably the most likely ways a **modification** would cause an existing piece of equipment to become subject to the NSPS requirements.

The following shall **not**, by themselves, be considered **modifications**: (1) maintenance, repair, and replacement which the Administrator determines to be routine, (2) an increase in production rate without a capital expenditure on a facility, (3) an increase in the hours of operation, (4) use of alternative raw materials if the facility was designed to accommodate them before the date of the NSPS proposal (August 31, 1983), (5) the addition or use of an air pollution control device unless it is less environmentally beneficial, and (6) relocation or change in ownership. [40 CFR, § 60.14(e)]

Reconstruction

The replacement of components (over a 2-year period) to such an extent that the **fixed capital cost** of the new components exceeds 50% of the fixed capital cost of comparable new equipment, and it is technologically and economically feasible for the operator to meet the standards. The affected facility is the individual piece of equipment, not the entire plant. Reconstruction can occur if there is a **continuous program of component replacement**. Unless reconstruction activities have been sufficiently documented by the owner or operator to demonstrate that the capital cost limitation has not been exceeded, the Department may consider the equipment an "affected facility".

The cost of replacement of ore-contact surfaces on processing equipment shall **not** be considered in calculating either the "fixed capital cost that would be required to construct a comparable new facility" under § 60.15. Ore-contact surfaces are crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets. Under § 60.15, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph (a) of this section) which are or will be replaced pursuant to all continuous programs of component replacement commenced within any 2-year period following August 31, 1983. [40 CFR, § 60.673(a) and (b)]



What equipment is subject to NSPS?

Equipment, under this NSPS, means:

- **crushers**
 - **grinding mills (including air separators, classifiers and conveyors)**
 - **screens**
 - **grizzlies**
 - **bucket elevators**
 - **transfer points** (transfer to or from a conveyor)
 - **bagging operations**
 - **storage bins**
 - **enclosed truck or railcar loading stations**
- } **Affected Facilities**

The NSPS applies **only** to the **affected facilities** listed above.

Affected facilities are individual pieces of operating equipment, not entire plants.

The following equipment and activities are **EXEMPT** under the NSPS (certain exceptions are noted):

- **fixed sand & gravel plants and crushed stone plants with capacities** (as defined in this NSPS) **of 25 tons per hour or less** (*Still need a state emission license*)
- **portable sand & gravel plants and crushed stone plants with capacities of 150 tons per hour or less** (*Still need a state emission license*)
- **common clay plants and pumice plants with capacities of 10 tons per hour or less**
- **drilling**
- **blasting**
- **loading at a mine**
- **hauling**
- **drying**
- **stockpiling and windblown dust from stockpiles**
- **roads and plant yards**
- **conveying** (other than at transfer points)
- **affected facilities located in underground mines**
- **stand-alone screening operations**
- **any other operations without crushing or grinding**
- **vehicles such as trucks or front-end loaders**
- **diesel engines**, either in **generator sets** or **diesel drives** on processing equipment
- **truck dumping** of nonmetallic mineral into any screening operation, feed hopper or crusher



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- **grizzlies** associated with **truck dumping**

(Equipment **EXEMPT** from NSPS continued)

- **washers** (**However**, some washers such as deck-type screens with spray bars can be modified for dry screening by removing the sprays. If a washer is modified and used for dry screening, and the washer was manufactured after August 31, 1983, the modified washer constitutes a screening operation and becomes an affected facility.)
- **transfer points to stockpiles** (Subpart OOO only regulates particulate matter emissions from transfer points to and from the affected facility.)
- **portland cement plants** and **hot mix asphalt** facilities (These facilities must comply with Subpart F and Subpart I. **However**, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including the first storage silo or bin are subject to Subpart OOO.)
- **wet screening operations** (and subsequent screening operations, bucket elevators, and belt conveyors that process saturated material in the production line up to, but not including the next crusher, grinding mill, or storage bin; and screening operations, bucket elevators, and belt conveyors in the production line downstream of wet mining operations, that process saturated materials up to the first crusher, grinding mill, or storage bin in the production line.)
- **facilities replaced with like facilities** of the **same or smaller "size"** (**However**, if the entire production line is replaced with equipment of equal or smaller size, the exemption does not apply. This exemption can only be used for a one-for-one replacement. Replacing one 100 ton per hour piece of equipment with two 50 ton per hour pieces is not exempt. This exemption requires the submittal of certain information on the equipment being replaced.



Definitions

Size	The rated capacity in tons per hour of a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station; the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.
Production Line	All affected facilities which are directly connected or are connected together by a conveying system .
Conveying System	A device for transporting materials from one piece of equipment or location to another location within a plant. It includes, but is not limited to the following: feeders, belt conveyors, bucket elevators and pneumatic systems. It does not include mobile units like trucks or loaders.
Capacity	The cumulative “rated capacity” of all initial crushers that are part of the plant.
Initial Crusher	Any crusher into which nonmetallic minerals can be fed without prior crushing in the plant.
Cumulative	The sum of the capacities of all initial crushers at the plant. Note that if the crusher is on-site and is capable of being operated, its rated capacity must be included.
Rated Capacity	The manufacturer’s rated capacity at a wide-open setting, open circuit with clean rock. It does not mean the capacity at which you typically operate.
Nonmetallic Mineral	Any of the minerals listed in 40 CFR, § 60.671 or any mixture of which the majority is any of the listed minerals.
Portable Plant	Any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.
Fixed Plant	Any nonmetallic mineral processing plant at which the processing equipment specified in § 60.670(a) is attached by a cable, chain, turnbuckle, bolt or other means (except electrical connections) to any anchor, slab, or structure including bedrock.
Nonmetallic Mineral Processing Plant	Any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in § 60.670 (b) and (c).
Constructed	Manufactured or fabricated. A crusher manufactured before August 31, 1983 but erected or installed after this date would not be designated an “affected facility”, unless it was modified or reconstructed after this date.

NOTE: For additional information regarding applicability to NSPS requirements, EPA’s Applicability Determination Index can be searched at <http://cfpub.epa.gov/adi/>.



Part II –Notification & Record Keeping Requirements, Fugitive Emission Standards, and Test Requirements

NSPS requirements

There are four types of requirements in the NSPS. These include: **1)** notification, **2)** recordkeeping, **3)** emission standards, and **4)** test requirements. **This document only covers the fugitive dust requirements.** If you use a baghouse, scrubber, or similar device to control emissions, you should review the requirements for that piece of equipment.

What are the NSPS Notification and Recordkeeping requirements?

You must submit written **notification** (including date(s), name and license # of company, description of equipment, manufacturer and serial #) to Bureau of Air Quality Compliance staff (and **keep written records**) for the following:

<u>initial startup:</u>	postmarked within 15 days of startup
<u>anticipated date of initial testing:</u>	postmarked not less than 30 days prior to testing (Method 9 Initial Opacity Compliance Test) – include test protocol, date of test and contact information
<u>change in date of testing:</u>	postmarked not less than 7 days prior to testing
<u>start of reconstruction:</u>	postmarked no later than 30 days after reconstruction is started
<u>start of modification:</u>	postmarked 30 days or as soon as practicable before the modification is started

Startup means the first time the affected facility is operated for **any** reason. This includes short process runs of raw material to determine the product quality or specification in addition to a full production run.

What emission standards for fugitive dust are in the NSPS?

You must meet the federal and state opacity emission standards. In the case of opacity from rock crushers, Maine's lower standard of 10% overrides the federal standard of 15%. Opacity limits apply to any inlet and any outlet of any piece of equipment. These standards are as follows:

- 10% opacity for all NSPS equipment (screens, transfer points, etc.) except crushers
- 10% opacity for crushers (the standard for Maine)
- No visible emissions (0% opacity) from wet (**saturated**) screening and subsequent screening, bucket elevators and belt conveyors that process saturated material in the production line up to the next crusher, grinder or storage.



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- No visible emissions (0% opacity) from screening, bucket elevators and belt conveyors that process saturated material in the production line downstream from wet mining operations (at or below the water table) and where the mineral is saturated up to the first crusher, grinder or storage bin in the production line.

Saturated means to soak or load to or beyond capacity.

Opacity refers to the density of the cloud of dust that is emitted from the NSPS equipment or transfer point. The easier it is to see through the cloud of dust the lower the opacity. Opacity needs to be determined by a “certified visible emissions observer”.

What are the NSPS test requirements?

Within 60 days after achieving the maximum production rate at which the equipment will be operated, but not later than 180 days after initial startup of the equipment, you must conduct an “initial opacity compliance test” and furnish Bureau of Air Quality a written report of the results within 30 days of the test date. Initial startup does not mean you have to test every time you move your equipment or each new construction season.

This is a **one-time** test. It must meet all of the requirements of the Initial Opacity Compliance Test Protocol (see below) as well as the requirements of Bureau of Air Quality’s Air Emission Compliance Test Protocol (available at <http://www.state.me.us/dep/air/compliance/STKTSTPR.doc>) in order to be accepted as a valid test. It does not need to be done every year and usually does not need to be repeated when there is a change in ownership of the equipment (if the test was done out of state, check with Bureau of Air Quality’s Stack Test Coordinator to determine if the test was valid). Be sure to obtain and keep copies of NSPS testing for your equipment.

The “Initial Opacity Compliance Test” is an evaluation of the fugitive particulate emissions from all applicable equipment in a crushing or grinding operation. Currently, the Bureau of Air Quality is requiring that only rock crushers be tested. This evaluation consists of multiple EPA Method 9 opacity observations. Please refer to the previous section regarding opacity requirements.

What options do I have regarding the NSPS test requirements?

Your options include **hiring a consultant OR performing the test yourself**.

If you want to complete NSPS testing yourself, there are four steps you need to take. These steps are very briefly described below. Specific testing requirements are listed in the section labeled “Initial Opacity Compliance Test Protocol”. You can obtain sample forms and more information from your regional compliance inspector or Bureau of Air Quality Licensing staff in Augusta.

Step 1 Send some staff to Smoke School to obtain certification in EPA Method 9 for reading opacity. It is up to each company to determine how many individuals should be certified at Smoke School. Smoke School is a one to two-day exercise that is provided every April and October. Contact Bureau of Air Quality’s Compliance Manager in Augusta for more information. The test site is in the Augusta area and a fee is required. The first day is a classroom training session



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and the second day is smoke school certification. The classroom training is only required with the initial training and recommended every 3 years, as a refresher.

- Step 2 Prepare a Test Plan and send it to Bureau of Air Quality's Regional Compliance Inspector. This must be postmarked at least 30 days before the test. This furnishes the compliance inspectors with advance notification so they can witness the test, if they choose to, and serves as a means to determine if the test will be properly conducted. You will be notified if the protocol is unacceptable and needs to be changed.
- Step 3 Do the test. Do the test according to NSPS and EPA Method 9 requirements and keep the records needed to describe the plant operation and layout at the time of opacity observations.
- Step 4 Prepare the test report and submit it to Bureau of Air Quality's Regional Compliance Inspector.

Initial Opacity Compliance Test Protocol

Pretest Procedures:

Before performing the Method 9, the observer should first discuss the details of the "affected facility" with the facility contact to confirm that it is subject to subpart OOO, and that the notification requirements have been met (see above). The observer should bring a camera to photograph the facility, a clipboard, blank EPA Visible Emissions forms (VE forms), blank paper for notes, extra pens, and a compass or a map. Mineral extraction facilities usually require safety gear including safety shoes, hard hat, safety glasses, ear protection and a high visibility safety vest.

The details of the crushing or grinding operation should be discussed with the contact, such as the type of material being processed (bank run gravel, ledge, etc.), the process rate in tons per hour and whether controls are in place and operating. These details should be noted on the VE forms.

Method 9 Observations:

EPA Method 9 must be used to determine compliance with the fugitive opacity standard. Initial compliance is determined using a total time of observation for each affected facility of three (3) hours (30 6-minute averages). Readings are taken every 15 seconds in increments of five percent opacity. The duration of the Method 9 observations when determining compliance with the fugitive emissions standard may be reduced from three (3) hours to one (1) hour (10 6-minute averages) if the following conditions apply:

1. there are no individual readings greater than ten percent (10%) opacity; and
2. there are no more than three (3) readings of ten percent (10%) for the one-hour period.

There are four other requirements when measuring fugitive emissions. First, the minimum distance between the observer and the emission source must be fifteen (15) feet. Second, the observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). Third, the observer must stand in the required observer position relative to the sun (observer-to-sun angle sector of 140°). Try to make all observations



perpendicular to the direction of the plume whenever possible. Finally, if an operator uses wet dust suppression for particulate matter control, the spray can generate a visible mist. This mist is not particulate matter emissions and is not considered visible emissions. If such water mist is present, the observation of emissions must be made at a point in the plume where the mist is no longer visible. When the wet dust suppression system is operated, continue to record opacity at this point but note all such observations on the data sheet. During data reduction, eliminate any such observations from any 24-observation (6-minute) set.

The observer should fill out as much of the Visible Emission form as possible before the start of the initial opacity compliance test. At a crusher, the observer must take observations at the crusher inlet, crusher outlet, and crusher discharge onto a belt conveyor. If belt conveyors are being observed, emissions from the crusher discharge **onto** a belt conveyor should **not** be considered **when** the observer measures emissions **from** the belt conveyor. For belt conveyors, opacity measurements must be done at the transfer points **to** and **from** the belt conveyor and during operation of the conveyor. However, if the transfer point is to a storage pile, then no opacity observation is required. Screening operations may be controlled for fugitive emission by wet suppression systems. Opacity observations should be made at the point of maximum opacity in the plume.

Approved Alternative Test Methods for Fugitive Emissions:

If emissions from two or more facilities continuously mix or combine together so that the opacity of fugitive emissions from an individual facility cannot be read, the operator can use one of two alternative test procedures. First, the operator can determine the highest fugitive opacity standard applicable to one of the individual facilities and use it as the standard for the combined emission stream. The highest fugitive opacity standard must be Federally enforceable. Also, Method 9 opacity observations must use the point of highest opacity whether it is from a single or combined plume. Second, the operator can separate the emissions so that the opacity of emissions from each individual facility can be read. Emissions can be separated by constructing a physical barrier or by shutting down the facility that is interfering. This can be done as long as the maximum achievable production rate (capacity) of the facility being tested is not affected and shutting down the interfering facility does not cause operational problems.

Alternative Testing Procedure for Application of Method 9 to Multiple Emission Points:

EPA has approved an alternative procedure where a single visible emission observer may conduct visible emission observations for up to three subpart OOO fugitive emission points within a 15-second interval. Use of this alternative procedure is subject to the following limitations:

1. No more than three emission points are read concurrently.
2. All three emission points must be within a 70° viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.
3. If an opacity reading for any one of the three emission points is within 5 percent opacity of the applicable Federal standard, then the observer must stop taking readings for the other two points and continue reading just that single point. (No reading greater than 10%.)



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Testing Procedure for Application of Method 9 or Method 22 to Emission Points in Buildings:

If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a) and (b) of 40 CFR, § 60.672, using Method 9, OR the building enclosing the affected facility or facilities must comply with the emission limits in paragraph (e), using Method 22 as cited in 40 CFR, § 60.675(d).

Completing the VE Forms:

The observer should review the forms for completeness, sign and date the forms on the bottom once the VE readings are finished. The results of the initial opacity compliance test must be forwarded to Bureau of Air Quality's Regional Compliance Inspector within 30 days.

Who do I call if I need further information regarding NSPS?

Call DEP's Bureau of Air Quality at (207) 287-2437

- Licensing Section – NSPS notification and applicability questions
- Enforcement Section – testing questions
- Compliance Section – procedural questions

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